IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicants:

Jack L. Arbiser

Serial No.:

Continuation of 09/345,712

Art Unit:

Not Yet Assigned

Filed:

January 18, 2001

Examiner:

Not Yet Assigned

For:

CURCUMIN AND CURCUMINIOD INHIBITION OF ANGIOGENESIS

Assistant Commissioner for Patents Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §1.56 and 37 C.F.R. §1.97, Applicant submits an Information Disclosure Statement, including five (5) pages of Form PTO-1449. The documents cited below were cited by or submitted to the Patent Office in Application Serial No. 09/345,712, filed June 30, 1999, to which the present application claims priority. Pursuant to 37 C.F.R. §1.98(d), Applicants are not enclosing copies of these publications. Copies will be provided upon request, however.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 01-2507.

U.S.S.N.: Continuation of 09/345,712

Filed: January 18, 2001

INFORMATION DISCLOSURE STATEMENT

U.S. Patents

Number	Issue Date	Patentee	Class/Subclass
4,704,383	11-03-1987	McNamara, et al.	514/152
4,900,815	02-13-1990	Tanaka, et al.	514/152
4,925,833	05-15-1990	McNamara, et al.	514/152
4,935,411	06-19-1990	McNamara, et al.	514/152
4,975,422	12-04-1990	Kanoh, et al.	514/54
5,290,807	03-01-1994	Folkman, et al.	514/475
5,401,504	03-28-1995	Das, et al.	424/195.1
5,576,330	11-19-1996	Buzzetti, et al.	514/307
5,629,340	05-13-1997	Kuwano, et al.	514/461
5,639,725	06-17-1997	O'Reilly, et al.	514/12
5,654,312	08-05-1997	Andrulis, Jr. et al.	514/279
5,670,493	09-23-1997	Cordi, et al.	514/80
5,712,291	01-27-1998	D'Amato	514/323
5,733,876	03-31-1998	O'Reilly, et al.	514/012
5,861,415	01-19-1999	Majeed et al.	514/321
5,891,924	04-06-1999	Aggarwal	514/679
5,925,376	06 - 20-1999	Heng	424/451

Foreign Documents

Number	Publication Date	<u>Patentee</u>	Country
WO 95/18606 A1	07-13-1995	Research Development	PCT
		Foundation	
10120558 A	05-12-1998	Doctors Cosmetics YG	JP

Publications

ARBISER, et al., "Curcumin is an *in vivo* inhibitor of angiogenesis," *Molecular Medicine* 4(6):376-383 (1998).

ARBISER, et al., "Oncogenic H-ras stimulates tumor angiogenesis by two distinct pathways," *Proc. Natl. Acad. Sci. U. S. A.* 94(3):861-6 (1997).

BILLE, et al., "Subchronic oral toxicity of turmeric oleoresin in pigs," *Food Chem. Toxicol.* 23(11):967-73 (1985).

CONNEY, et al., "Inhibitory effect of curcumin and some related dietary compounds on tumor promotion and arachidonic acid metabolism in mouse skin," *Adv. Enzyme Regul.* 31:385-96 (1991).

U.S.S.N.: Continuation of 09/345,712

Filed: January 18, 2001

INFORMATION DISCLOSURE STATEMENT

ELAYAN, et al., "Long-term alteration in the central monoaminergic systems of the rat by 2,4,5-trihydroxyamphetamine but not by 2-hydroxy-4,5-methylenedioxymethamphetamine or 2-hydroxy-4,5-methylenedioxyamphetamine," *Eur. J. Pharmacol.* 221(2-3):281-8 (1992).

FOLKMAN, "Diagnostic and therapeutic applications of angiogenesis research," C. R. Acad. Sci. III. 316(9):914-18 (1993).

FOLKMAN, et al., "Long-term culture of capillary endothelial cells," *Proc. Natl. Acad. Sci. U. S. A.* 76(10):5217-21 (1979).

FOLKMAN, "Antiangiogenic gene therapy," Proc. Natl. Acad. Sci. U. S. A. 95(16):9064-6 (1998).

GENETIC ENGINEERING NEWS, 18(17):1, 8, 34, 46 (1998).

GOLUB, et al., "A non-antibacterial chemically-modified tetracycline inhibits mammalian collagenase activity," J. Dent. Res. 1987 Aug;66(8):1310-4.

GOLUB, et al., "Further evidence that tetracyclines inhibit collagenase activity in human crevicular fluid and from other mammalian sources," *J. Periodontal Res.* 20(1):12-23 (1985).

GOLUB, et al., "Minocycline reduces gingival collagenolytic activity during diabetes. Preliminary observations and a proposed new mechanism of action," *J. Periodontal Res.* 18(5):516-26 (1983).

GOLUB, et al., "Tetracyclines inhibit tissue collagenase activity. A new mechanism in the treatment of periodontal disease," *Periodontal Res.* 19(6):651-5 (1984).

HONG & LIPPMAN, "Cancer chemoprevention," J. Natl. Cancer Inst. Monogr. (17):49-53 (1995).

HUANG, et al., "Effect of dietary curcumin and ascorbyl palmitate on azoxymethanol-induced colonic epithelial cell proliferation and focal areas of dysplasia," *Cancer Lett.* 64(2):117-21 (1992).

HUANG, et al., "Effects of curcumin, demethoxycurcumin, bisdemethoxycurcumin and tetrahydrocurcumin on 12-O-tetradecanoylphorbol-13-acetate-induced tumor promotion," *Carcinogenesis* 16(10):2493-7 (1995).

HUANG, et al., "Suppression of c-Jun/AP-1 activation by an inhibitor of tumor promotion in mouse fibroblast cells," *Proc. Natl. Acad. Sci. U. S. A.* 88(12):5292-6 (1991).

KELLOFF, et al., "Cancer Chemopreventive Agents: Drug Development Status II," J. Cell. Biochem. Suppl. 26:1-28 (1996)

U.S.S.N.: Continuation of 09/345,712

Filed: January 18, 2001

INFORMATION DISCLOSURE STATEMENT

KENT, et al., "Requirement for protein kinase C activation in basic fibroblast growth factor-induced human endothelial cell proliferation," Circ. Res. 77(2):231-8 (1995).

KENYON, et al., "A model of angiogenesis in the mouse cornea," *Invest. Ophthalmol. Vis. Sci.* 37(8):1625-32 (1996).

KILPATRICK, et al., "Towards an RNA-based therapy for Marfan syndrome," *Mol. Med. Today* 4(9):376-81 (1998).

KOHL, et al., "Inhibition of farnesyltransferase induces regression of mammary and salivary carcinomas in ras transgenic mice," *Nat. Med.* 1(8):792-7 (1995).

KORUTLA, et al., "Inhibition of ligand-induced activation of epidermal growth factor receptor tyrosine phosphorylation by curcumin," *Carcinogenesis* 16(8):1741-5 (1995).

LARCHER, et al., "Up-regulation of vascular endothelial growth factor/vascular permeability factor in mouse skin carcinogenesis correlates with malignant progression state and activated H-ras expression levels," *Cancer Res.* 56(23):5391-6 (1996).

LU, et al., "Effect of curcumin on 12-O-tetradecanoylphorbol-13-acetate- and ultraviolet B light-induced expression of c-Jun and c-Fos in JB6 cells and in mouse epidermis," *Carcinogenesis* 15(10):2363-70 (1994).

MARTELL & BOOTHE, "The 6-deoxytetracyclines. VII. Alkylated aminotetracyclines possessing unique antibacterial activity," *J. Med. Chem.* 10(1):44-6 (1967).

O'BRIEN, et al. "Two mechanisms of basic fibroblast growth factor-induced angiogenesis in bladder cancer," *Cancer Res.* 57(1):136-40 (1997).

PROCHASKA, et al., "Rapid detection of inducers of enzymes that protect against carcinogens," *Proc. Natl. Acad. Sci. U. S. A.* 89(6):2394-8 (1992).

- RAO, et al., "Chemoprevention of colon carcinogenesis by dietary curcumin, a naturally occurring plant phenolic compound," *Cancer Res.* 55(2):259-66 (1995).
- RAO, et al., "Inhibition by dietary curcumin of azoxymethane-induced ornithine decarboxylase, tyrosine protein kinase, arachidonic acid metabolism and aberrant crypt foci formation in the rat colon," *Carcinogenesis* 14(11):2219-25 (1993).

RAO, et al., "Anti-inflammatory activity of curcumin analogues," *Indian J. Med. Res.* 75:574-8 (1982).

SHING, et al., "Curcumin inhibits the proliferation and cell cycle progression of human umbilical vein endothelial cell," *Cancer Lett.* 107(1):109-15 (1996).

U.S.S.N.: Continua

Continuation of 09/345,712

Filed:

January 18, 2001

INFORMATION DISCLOSURE STATEMENT

SINGH, et al., "Activation of transcription factor NF-kappa B is suppressed by curcumin," J. Biol. Chem. 270(42):24995-5000 (1995).

STONER, "Polyphenols as cancer chemopreventive agents," J. Cell. Biochem. Suppl. 22:169-80 (1995).

THALOOR, et al., "Inhibition of angiogenic differentiation of human umbilical vein endothelial cells by curcumin," *Cell Growth Differ*. 9:305-312 (1998).

TORTORA, "Principles of Human Anatomy", 5th ed., pp. 371-372, Harper & Row, N. Y. (1989).

ZBINOVSKY, et al., <u>Analytical Profiles of Drug Substances</u>, Florey (ed.), pp. 323-339 (Academic Press, NY 1977)

Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicant invites the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicant is of the opinion that his claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,

Patrea L. Pabst

Reg. No. 31,284

Dated: January 18, 2001

ARNALL GOLDEN & GREGORY, LLP 2800 One Atlantic Center 1201 W. Peachtree Street Atlanta, Georgia 30309-3450 (404) 873-8794 (404) 873-8795 (fax)



Continuation of 09/345,712

Filed:

January 18, 2001

INFORMATION DISCLOSURE STATEMENT

Certificate of Mailing under 37 C.F.R. § 1.10

I hereby certify that this INFORMATION DISCLOSURE STATEMENT and any documents referred to as attached therein are being deposited with the United States Postal Service on this date, January 18, 2001, in an envelope as "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10, Mailing Label Number EL 709 418 650 US addressed to Box Patent Application, Assistant Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Date: January 18, 2001